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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/520,265	01/06/2005	Kazuyasu Nishikawa	261268US2PCT	5085

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EXAMINER
IM, JUNGHWA M

ART UNIT	PAPER NUMBER
2811	

NOTIFICATION DATE	DELIVERY MODE
11/30/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/520,265	NISHIKAWA ET AL.	
	Examiner	Art Unit	
	Junghwa M. Im	2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *6-11 and 13-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *6-11 and 13-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 6-7 and 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tanba (JP 2003-068862) in view of Gomez et al. (US 6847282), hereinafter Gomez and Lowther et al. (US 6635949), hereinafter Lowther.

Regarding claims 6 and 10, Fig. 2 of Tanba shows a semiconductor device comprising:

a semiconductor substrate (6);

an inductor (21) provided with a first conductor interconnection (2) formed spirally on the semiconductor substrate;

a first shield structure (11 in the first layer 16) that is provided with a second conductor interconnection provided along an outer periphery of the spiral pattern of the inductor except for an opening in a portion of the second conductor interconnection, and the second conductor is electrically connected to ground (shown in Fig. 3),

a second shield structure (11 in the second layer 17) disposed at a layer below the first shield structure such that the first shield structure and second shield structure are in different vertical planes, components of the first shield structure and the second shield structure include a first and second component each having a perimeter that is partially opened; and

a third shield structure (11 below the second layer 17) disposed at a layer below the second shield structure.

Fig. 2 of Tanba shows most aspects of the instant invention except that three shield structures are ring-shaped with the openings in the perimeter that are not superimposed in a stacked state. Figures 1B and 13 of Gomez shows a ring-shaped shield structures with opening at various locations of the perimeter.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate Gomez's teachings into the device of Tanba in order to form the openings at the different locations in the perimeter of the ring-shaped shield structures not superposed in a stacked state of the plural components to adjust the noise reduction.

Note that a machine translation for the Tanba reference is available at JPO web site http://www.ipdl.inpit.go.jp/homepg_e.ipdl .

The combination of Tanba/Gomez fails to show a shield structure with a conductor interconnection connected to ground potential. Fig. 1 of Lowther shows a shield structure (102) with a conductor interconnection connected to ground potential (110; ground lead).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate Lowther's teachings into the device of Tanba/Gomez in order to form a shield structure with a conductor interconnection connected to ground potential to reduce the noise.

Regarding claims 7 and 11, Fig. 2 of Tanba shows an interconnection width of the first shield is equal to or more than a size of a spacing of the spiral pattern of the inductor, and is equal to or less than a radius of the spiral pattern of the inductor.

Regarding claim 9, Fig. 2 of Tanba shows a plurality of interconnection layers (17) formed on the semiconductor substrate, each of the plurality of interconnection layers corresponding to one of the first shield, the second shield and the third shield, wherein the inductor is formed in any one of these interconnection layers; and the second conductor interconnection is formed in a different interconnection layer from the interconnection layer in which the inductor is formed.

Regarding claims 13 and 14, Fgi. 1 of Lowther shows notches in the ground shield, therefore, the combination of Tanba/Gomez/Lowther would show that the second conductor interconnection includes a plurality of notch portions configured to intercept a path of induced current generated by electromagnetic induction from the inductor. Note that Lowther disclose that a plurality of notch portions configured to intercept a path of induced current generated by electromagnetic induction from the inductor (col. 9, lines 8-43).

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tanba in view of Gomez and Lowthers as applied to claim 6 above, and further in view of Kawahisa et al. (JP 2003-068862), hereinafter Kawahisa.

Regarding claim 8, the combination of Tanba/Gomez/Lowther shows most aspects of the instant invention except "a distance between the shield and an outer border of the interconnection of the inductor is equal to a spacing of the spiral pattern of the inductor." Fig. 1 of Kawahisa shows that a distance between the shield and an outer border of the interconnection of the inductor is equal to a spacing of the spiral pattern of the inductor.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teachings of Kawahisa into the device of Tanba/Gomez/Lowther in order to have a distance between the shield and an outer border of the interconnection of the inductor being equal to a spacing of the spiral pattern of the inductor to improve the noise reduction.

Note that a machine translation for the Kawahisa reference is available at JPO web site http://www.ipdl.inpit.go.jp/homepg_e.ipdl .

Regarding claims 15 and 16, Fig. 1 of Lowther shows a portion of the first shield structure and the inductor are integrally formed together, therefore, the combination of Tanba/Gomez/Lowther would show that the first shield structure is configured to function as a return path of a signal input to the inductor.

Response to Arguments

Applicant's arguments with respect to pending claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Junghwa M. Im whose telephone number is (571) 272-1655. The examiner can normally be reached on MON.-FRI. 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne A. Gurley can be reached on (571) 272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Junghwa M. Im
Examiner
Art Unit 2811

jmi
11/09/2007